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Associations between intestinal lesions and detection of *Clostridium perfringens* type A or beta-2 toxin in neonatal piglets with diarrhoea

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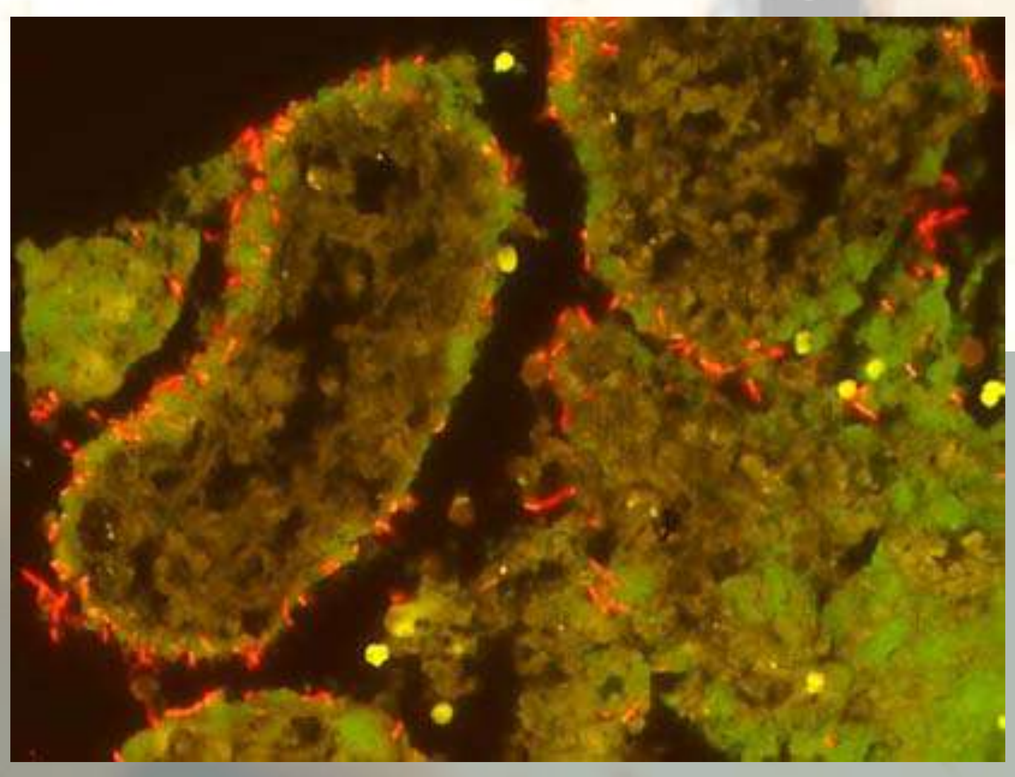
Objective: To evaluate associations between gross and histopathological lesions and the presence of *Clostridium perfringens* type A (*CpA)* and beta-2 toxin in piglets from 4 herds with outbreaks of diarrhoea.

Methods: Pathological examinations on 51 diarrhoeic piglets aged 3-7 days were carried out. *CpA* was cultured and typed by PCR. A *Clostridium perfringens* spp targeted probe was used for flourescent in situ hybridization (FISH) and detection of beta-2 toxin in intestinal contents was performed by enzyme-linked immunosorbent assay (ELISA).

Results: Piglets without intestinal lesions had a significantly ($P < 0.05$) higher prevalence of *CpA* and beta-2 toxin (Table 1).

Fig.1: Flaccidity of small intestine. The intestine is thin-walled and flaccid throughout its length.

Fig. 2: FISH positive ileal mucosa. Double hybridization for Domain bacteria (green) and Cl. perfringens (red). Moderate amounts of Cl. perfringens cells are seen.



	***CpA* positive samples**				**Beta-2 positive samples**	
Intestinal lesion	Culture (n=51)		FISH# (n=51)		ELISA (n=45)	
	Lp*	Lnp*	Lp	Lnp	Lp	Lnp
Flaccidity of small intestine	24%	64%				
Flaccidity of large intestine	19%	54%			32%	83%
Villous atrophy	22%	58%				
Small intestinal epithelial lesions			60%	90%	25%	65%

Table 1. Associations between intestinal lesions and detection of *CpA* and beta-2 toxin. Only statistically significant asociations (Fisher's exact test, $\alpha=0.05$) are shown. # Flourescent in situ hybridization using a *Clostridium perfringens* spp targeted probe. * Lp: Lesion present. Lnp: Lesion not present.

Conclusion: Demonstration of *CpA* or Beta-2 toxin was associated with absence of intestinal lesions.

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